Sub B1

1. (Amended) A color characterization method for characterizing a color imaging system, the method comprising:

generating first color values in a color coordinate system by using output samples of the color imaging system, the first color values representing colors of the output samples of the color imaging system; and

converting the first color values into second color values in a device-independent color coordinate system using a white reference vector and a black reference vector [first and second reference values], the white reference vector [first reference values] being adjusted using the black reference vector and the first color values.

2. (Amended) A color characterization method, according to claim 1, further comprising calculating the black reference vector [second reference values] as a function of a medium on which the output samples are formed.

3. (Amended) A color characterization method, according to claim 2, further comprising defining the black reference vector [second reference values] as a vector of zeros.

4. (Amended) A color characterization method, according to claim 2, further comprising defining the black reference vector [second reference values] using a maximum value in a black color channel of the color imaging system and minimum values in at least one additional color channel of the color imaging system.

5. (Amended) A color characterization method, according to claim 2, further comprising defining the black reference vector [second reference values] using maximum values in color channels of the color imaging system.

Sub B2

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8. (Amended) A color characterization method for characterizing a color imaging system, the method comprising:

generating first color values in a color coordinate system by using output samples of the color imaging system, the first color values representing colors of the output samples;

converting the first color values into second color values in a device-independent color coordinate system using a white reference vector and a black reference vector [first and second reference values];

calculating the a black reference vector [second reference values] as a function of a medium on which the output samples are formed;

calculating the white reference vector [first reference values] using the black reference vector [second reference values]; and

adjusting the white reference vector [first reference values] using the first color values.

8 ~~9.~~ (Amended) A color characterization method, according to claim 7 ~~8,~~ wherein the white reference vector for the device-independent color coordinate system uses white reference tristimulus values to compensate for certain perceptual effects.

9 ~~10.~~ (Amended) A color characterization method, according to claim 8 ~~9,~~ further comprising:

converting the first color values into the second color values using transformations[; and

adjusting the first reference values using the first color values].

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11 ~~12~~. (Amended) A color characterization method, according to claim 10 ~~11~~, further comprising:

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converting the first color values into the second color values using the equations

$$L^* = 116((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} - 16$$

$$a^* = 500[((X - X_{bp}) / (X_n' - X_{bp}))^{1/3} - ((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3}]$$

$$b^* = 200[((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} - ((Z - Z_{bp}) / (Z_n' - Z_{bp}))^{1/3}],$$

wherein

X, Y, and Z are tristimulus values for the first color values,

X_n', Y_n', and Z_n' represent [are] the white reference vector [first reference values], and

X_{bp}, Y_{bp}, and Z_{bp} represent [are] the black reference vector [second reference values]; and

adjusting the white reference vector [first reference values] using the tristimulus values.

12 ~~13~~. (Amended) A color characterization method, according to claim 11 ~~12~~, further comprising adjusting the white reference vector [first reference values] using the equations

$$X_n' = X_b(1 - sat(X,X_{bp},X_n)) + X_n \bullet sat(X,X_{bp},X_n)$$

$$Y_n' = Y_b(1 - sat(Y,Y_{bp},Y_n)) + Y_n \bullet sat(Y,Y_{bp},Y_n)$$

$$Z_n' = Z_b(1 - sat(Z,Z_{bp},Z_n)) + Z_n \bullet sat(Z,Z_{bp},Z_n),$$

wherein

$$sat(X,X_{bp},X_n) = (X - X_n) / (X_{bp} - X_n)$$

$$sat(Y,Y_{bp},Y_n) = (Y - Y_n) / (Y_{bp} - Y_n)$$

$$sat(Z,Z_{bp},Z_n) = (Z - Z_n) / (Z_{bp} - Z_n)$$

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X_n, Y_n, and Z_n are tristimulus values for a perfect white diffuser under standard viewing conditions, and

X_b, Y_b, and Z_b are tristimulus values for an imaging base associated with the color imaging system.

13 ~~14.~~ (Amended) A color characterization method, according to claim 10 ~~11~~, further comprising:

converting the first color values into the second color values using the equations

$$L^* = 116(Y / Y_n')^{1/3} - 16$$
$$a^* = 500[(X / X_n')^{1/3} - (Y / Y_n')^{1/3}]$$
$$b^* = 200[(Y / Y_n')^{1/3} - (Z / Z_n')^{1/3}],$$

wherein

X, Y, and Z are tristimulus values for the first color values, and

X_n', Y_n', and Z_n' <u>represent</u> [are] the <u>white reference vector</u> [first reference values]; and

adjusting the <u>white reference vector</u> [first reference values] using the tristimulus values.

14 ~~15.~~ (Amended) A color characterization method, according to claim 13 ~~14~~, further comprising adjusting the <u>white reference vector</u> [first reference values] using the equations

$$X_n' = X_b(1 - sat(X,X_{max},X_n)) + X_n \bullet sat(X,X_{max},X_n)$$
$$Y_n' = Y_b(1 - sat(Y,Y_{max},Y_n)) + Y_n \bullet sat(Y,Y_{max},Y_n)$$
$$Z_n' = Z_b(1 - sat(Z,Z_{max},Z_n)) + Z_n \bullet sat(Z,Z_{max},Z_n),$$

wherein

$$sat(X,X_{max},X_n) = (X - X_n) / (X_{max} - X_n)$$
$$sat(Y,Y_{max},Y_n) = (Y - Y_n) / (Y_{max} - Y_n)$$

$sat(Z,Z_{max},Z_n) = (Z - Z_n) / (Z_{max} - Z_n)$

X_n, Y_n, and Z_n are tristimulus values for a perfect white diffuser under standard viewing conditions,

X_{max}, Y_{max}, and Z_{max} are tristimulus values for a color having a maximum saturation associated with the color imaging system, and

X_b, Y_b, and Z_b are tristimulus values for an imaging base associated with the color imaging system.

---

17. (Amended) For use in characterizing a color imaging system, a color characterization arrangement comprising:

means for generating first color values in a color coordinate system by using output samples of the color imaging system, the first color values representing colors of the output samples; and

means for converting the first color values into second color values in a device-independent color coordinate system using a white reference vector and a black reference vector [first and second reference values], the white reference vector [first reference values] being adjusted using the black reference vector and the first color values.

18. (Amended) For use in characterizing a color imaging system, a color characterization arrangement comprising:

a computer arrangement, configured and arranged to receive first color values in a color coordinate system, the first color values representing colors of output samples of the color imaging system; and

a first memory, responsive to the computer arrangement and configured and arranged to store second color values in a device-independent color coordinate system,

the computer arrangement being further configured and arranged to convert the first color values into the second color values using a white reference vector and a black

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reference vector [first and second reference values], the white reference vector [first reference values] being adjusted using the black reference vector and the first color values.

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18 ~~20.~~ (Amended) A color characterization arrangement, according to claim 17 ~~18~~ [19], wherein the computer arrangement is further configured and arranged to define the black reference vector [second reference values] as a vector of zeros.

19 ~~21.~~ (Amended) A color characterization arrangement, according to claim 17 ~~18~~ [19], wherein the computer arrangement is further configured and arranged to define the black reference vector [second reference values] using a maximum value in a black color channel of the color imaging system and minimum values in at least one additional color channel of the color imaging system.

~~22. (Amended) A color characterization arrangement, according to claim 19, wherein the computer arrangement is further configured and arranged to define the black reference vector [second reference values] using maximum values in color channels of the color imaging system.~~

~~23. (Amended) A color characterization arrangement, according to claim 18, wherein the computer arrangement is further configured and arranged to calculate the white reference vector [first reference values] using the black reference vector [second reference values].~~

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21 ~~25.~~ (Amended) A color characterization arrangement, according to claim 17 ~~18~~, wherein the white reference vector for the device-independent color coordinate system uses white reference tristimulus values to compensate for certain perceptual effects.

22 ~~26.~~ (Amended) A color characterization arrangement, according to claim 17 ~~18~~, wherein the computer arrangement is further configured and arranged to:

convert the first color values into the second color values using transformations[; and

adjust the first reference values using the first color values].

---

24 ~~28.~~ (Amended) A color characterization arrangement, according to claim 23 ~~27~~, wherein the computer arrangement is further configured and arranged to:

convert the first color values into the second color values using the equations

$$L^* = 116((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} - 16$$

$$a^* = 500[((X - X_{bp}) / (X_n' - X_{bp}))^{1/3} - ((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3}]$$

$$b^* = 200[((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} - ((Z - Z_{bp}) / (Z_n' - Z_{bp}))^{1/3}],$$

wherein

X, Y, and Z are tristimulus values for the first color values,

X_n', Y_n', and Z_n' represent [are] the white reference vector [first reference values], and

X_{bp}, Y_{bp}, and Z_{bp} represent [are] the black reference vector [second reference values]; and

adjust the white reference vector [first reference values] using the tristimulus values.

25 ~~29.~~ (Amended) A color characterization arrangement, according to claim 24 ~~28,~~ wherein the computer arrangement is further configured and arranged to adjust the white reference vector [first reference values] using the equations

$$X_n' = X_b(1 - \mathrm{sat}(X,X_{bp},X_n)) + X_n \bullet \mathrm{sat}(X,X_{bp},X_n)$$
$$Y_n' = Y_b(1 - \mathrm{sat}(Y,Y_{bp},Y_n)) + Y_n \bullet \mathrm{sat}(Y,Y_{bp},Y_n)$$
$$Z_n' = Z_b(1 - \mathrm{sat}(Z,Z_{bp},Z_n)) + Z_n \bullet \mathrm{sat}(Z,Z_{bp},Z_n),$$

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wherein

$$\mathrm{sat}(X,X_{bp},X_n) = (X - X_n) / (X_{bp} - X_n)$$
$$\mathrm{sat}(Y,Y_{bp},Y_n) = (Y - Y_n) / (Y_{bp} - Y_n)$$
$$\mathrm{sat}(Z,Z_{bp},Z_n) = (Z - Z_n) / (Z_{bp} - Z_n)$$

X_n, Y_n, and Z_n are tristimulus values for a perfect white diffuser under standard viewing conditions, and

X_b, Y_b, and Z_b are tristimulus values for an imaging base associated with the color imaging system.

26 ~~30.~~ (Amended) A color characterization arrangement, according to claim 23 ~~27~~, wherein the computer arrangement is further configured and arranged to:

convert the first color values into the second color values using the equations

$$L^* = 116(Y / Y_n')^{1/3} - 16$$
$$a^* = 500[(X / X_n')^{1/3} - (Y / Y_n')^{1/3}]$$
$$b^* = 200[(Y / Y_n')^{1/3} - (Z / Z_n')^{1/3}],$$

wherein

X, Y, and Z are tristimulus values for the first color values, and

X_n', Y_n', and Z_n' represent [are] the white reference vector [first reference values]; and

adjust the white reference vector [first reference values] using the tristimulus values.

27 ~~31.~~ (Amended) A color characterization arrangement, according to claim 26 ~~30~~, wherein the computer arrangement is further configured and arranged to adjust the white reference vector [first reference values] using the equations

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$$X_n' = X_b(1 - sat(X,X_{max},X_n)) + X_n \bullet sat(X,X_{max},X_n)$$

$$Y_n' = Y_b(1 - sat(Y,Y_{max},Y_n)) + Y_n \bullet sat(Y,Y_{max},Y_n)$$

$$Z_n' = Z_b(1 - sat(Z,Z_{max},Z_n)) + Z_n \bullet sat(Z,Z_{max},Z_n),$$

wherein

$$sat(X,X_{max},X_n) = (X - X_n) / (X_{max} - X_n)$$

$$sat(Y,Y_{max},Y_n) = (Y - Y_n) / (Y_{max} - Y_n)$$

$$sat(Z,Z_{max},Z_n) = (Z - Z_n) / (Z_{max} - Z_n)$$

X_n, Y_n, and Z_n are tristimulus values for a perfect white diffuser under standard viewing conditions,

X_{max}, Y_{max}, and Z_{max} are tristimulus values for a color having a maximum saturation associated with the color imaging system, and

X_b, Y_b, and Z_b are tristimulus values for an imaging base associated with the color imaging system.

34. (Amended) For use in characterizing a color imaging system, a data storage medium storing a computer-executable program configured and arranged to, when executed,

obtain first color values in a color coordinate system by using output samples of the color imaging system, the first color values representing colors of the output samples, and

convert the first color values into second color values in a device-independent color coordinate system using <u>a white reference vector and a black reference vector</u> [first and second reference values], the <u>white reference vector</u> [first reference values] being adjusted using the <u>black reference vector and the</u> first color values.

31 ~~35.~~ (Amended) A data storage medium, according to claim ~~34~~ 30, wherein the computer-executable program is further configured and arranged to, when executed,

calculate the black reference vector [second reference values] as a function of a medium on which the output samples are formed.

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32 ~~36~~. (Amended) A data storage medium, according to claim 31 ~~35~~, wherein the computer-executable program is configured and arranged to, when executed, define the black reference vector [second reference values] as a vector of zeros.

33 ~~37~~. (Amended) A data storage medium, according to claim 31 ~~35~~, wherein the computer-executable program is configured and arranged to, when executed, define the black reference vector [second reference values] using a maximum value in a black color channel of the color imaging system and minimum values in at least one additional color channel of the color imaging system.

34 ~~38~~. (Amended) A data storage medium, according to claim 31 ~~35~~, wherein the computer-executable program is configured and arranged to, when executed, define the black reference vector [second reference values] using maximum values in color channels of the color imaging system.

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35 ~~41~~. (Amended) A data storage medium, according to claim 30 ~~34~~, wherein the white reference vector for the device-independent color coordinate system uses white reference tristimulus values to compensate for certain perceptual effects.

36 ~~42~~. (Amended) A data storage medium, according to claim 35 ~~41~~, wherein the computer-executable program is further configured and arranged to, when executed,

convert the first color values into the second color values using transformations[; and

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adjust the first reference values using the first color values].

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36 ~~44.~~ (Amended) A data storage medium, according to claim 37 ~~43~~, wherein the computer-executable program is further configured and arranged to, when executed,

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convert the first color values into the second color values using the equations

$$L^* = 116((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} - 16$$

$$a^* = 500[((X - X_{bp}) / (X_n' - X_{bp}))^{1/3} - ((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3}]$$

$$b^* = 200[((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} - ((Z - Z_{bp}) / (Z_n' - Z_{bp}))^{1/3}],$$

wherein

X, Y, and Z are tristimulus values for the first color values,

X_n', Y_n', and Z_n' represent [are] the white reference vector [first reference values], and

X_{bp}, Y_{bp}, and Z_{bp} represent [are] the black reference vector [second reference values], and

adjust the white reference vector [first reference values] using the tristimulus values.

39 ~~45.~~ (Amended) A data storage medium, according to claim 38 ~~44~~, wherein the computer-executable program is further configured and arranged to, when executed, adjust the white reference vector [first reference values] using the equations

$$X_n' = X_b(1 - sat(X,X_{bp},X_n)) + X_n \bullet sat(X,X_{bp},X_n)$$

$$Y_n' = Y_b(1 - sat(Y,Y_{bp},Y_n)) + Y_n \bullet sat(Y,Y_{bp},Y_n)$$

$$Z_n' = Z_b(1 - sat(Z,Z_{bp},Z_n)) + Z_n \bullet sat(Z,Z_{bp},Z_n),$$

wherein

$$sat(X,X_{bp},X_n) = (X - X_n) / (X_{bp} - X_n)$$
$$sat(Y,Y_{bp},Y_n) = (Y - Y_n) / (Y_{bp} - Y_n)$$
$$sat(Z,Z_{bp},Z_n) = (Z - Z_n) / (Z_{bp} - Z_n)$$

X_n, Y_n, and Z_n are tristimulus values for a perfect white diffuser under standard viewing conditions, and

X_b, Y_b, and Z_b are tristimulus values for an imaging base associated with the color imaging system.

40 ~~46~~. (Amended) A data storage medium, according to claim 37 ~~43~~, wherein the computer-executable program is further configured and arranged to, when executed,

convert the first color values into the second color values using the equations

$$L^* = 116(Y / Y_n')^{1/3} - 16$$
$$a^* = 500[(X / X_n')^{1/3} - (Y / Y_n')^{1/3}]$$
$$b^* = 200[(Y / Y_n')^{1/3} - (Z / Z_n')^{1/3}],$$

wherein

X, Y, and Z are tristimulus values for the first color values, and

X_n', Y_n', and Z_n' represent [are] the white reference vector [first reference values], and

adjust the white reference vector [first reference values] using the tristimulus values.

41 ~~47~~. (Amended) A data storage medium, according to claim 40 ~~46~~, wherein the computer-executable program is further configured and arranged to, when executed, adjust the white reference vector [first reference values] using the equations

$$X_n' = X_b(1 - sat(X,X_{max},X_n)) + X_n \bullet sat(X,X_{max},X_n)$$
$$Y_n' = Y_b(1 - sat(Y,Y_{max},Y_n)) + Y_n \bullet sat(Y,Y_{max},Y_n)$$
$$Z_n' = Z_b(1 - sat(Z,Z_{max},Z_n)) + Z_n \bullet sat(Z,Z_{max},Z_n),$$

wherein

$$sat(X,X_{max},X_n) = (X - X_n) / (X_{max} - X_n)$$

$$sat(Y,Y_{max},Y_n) = (Y - Y_n) / (Y_{max} - Y_n)$$

$$sat(Z,Z_{max},Z_n) = (Z - Z_n) / (Z_{max} - Z_n)$$

X_n, Y_n, and Z_n are tristimulus values for a perfect white diffuser under standard viewing conditions,

X_{max}, Y_{max}, and Z_{max} are tristimulus values for a color having a maximum saturation associated with the color imaging system, and

X_b, Y_b, and Z_b are tristimulus values for an imaging base associated with the color imaging system.

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49. (Amended) A color transformation method for performing a color transformation between first and second color imaging systems, the color transformation method comprising:

generating first and second color values by using output samples of the first and second color imaging systems, the first and second color values respectively representing colors of the output samples of the first and second color imaging systems;

converting the first and second color values respectively into third and fourth color values using a device-independent color coordinate system;

calculating a black reference vector [first reference values] from a medium on which the output samples are formed and a white reference vector [second reference values] from the black reference vector [first reference values];

adjusting the white reference vector [second reference values]using the first and second color values; and

generating color transformation values using the third and fourth color values.

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~~50~~. (Amended) A color characterization method, according to claim
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~~49~~, wherein the white reference vector of the device-independent color coordinate system uses white reference tristimulus values to compensate for certain perceptual effects.

45 ~~51~~. (Amended) A color characterization method, according to claim 44 ~~50~~, further comprising:

converting the first color values into the second color values using transformations[; and

adjusting the first reference values using the first color values].

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47 ~~53~~. (Amended) A color transformation method, according to claim 46 ~~52~~, further comprising:

converting the first color values into the third color values using the equations

$$L^* = 116((Y_1 - Y_{bp1}) / (Y_{n1}' - Y_{bp1}))^{1/3} - 16$$

$$a^* = 500[((X_1 - X_{bp1}) / (X_{n1}' - X_{bp1}))^{1/3} - ((Y_1 - Y_{bp1}) / (Y_{n1}' - Y_{bp1}))^{1/3}]$$

$$b^* = 200[((Y_1 - Y_{bp1}) / (Y_{n1}' - Y_{bp1}))^{1/3} - ((Z_1 - Z_{bp1}) / (Z_{n1}' - Z_{bp1}))^{1/3}],$$

wherein

X_1, Y_1, and Z_1 are tristimulus values for the first color values,

X_{bp1}, Y_{bp1}, and Z_{bp1} are black tristimulus values for the first color imaging system, and

X_{n1}', Y_{n1}', and Z_{n1}' are white reference tristimulus values for the first color imaging system;

converting the second color values into the fourth color values using the equations

$$L^* = 116((Y_2 - Y_{bp2}) / (Y_{n2}' - Y_{bp2}))^{1/3} - 16$$

$$a^* = 500[((X_2 - X_{bp2}) / (X_{n2}' - X_{bp2}))^{1/3} - ((Y_2 - Y_{bp2}) / (Y_{n2}' - Y_{bp2}))^{1/3}]$$

$$b^* = 200[((Y_2 - Y_{bp2}) / (Y_{n2}' - Y_{bp2}))^{1/3} - ((Z_2 - Z_{bp2}) / (Z_{n2}' - Z_{bp2}))^{1/3}],$$

wherein

X_2, Y_2, and Z_2 are tristimulus values for the second color values,

X_{bp2}, Y_{bp2}, and Z_{bp2} are black tristimulus values for the second color imaging system, and

X_{n2}', Y_{n2}', and Z_{n2}' are white tristimulus values for the second color imaging system; and

adjusting the <u>white reference vector</u> [second reference values] using the black tristimulus values for the first and second color imaging systems.

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~~55~~. (Amended) A color characterization method, according to claim 46 ~~52~~, further comprising:

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converting the first color values into the third color values using the equations

$$L^* = 116(Y_1 / Y_{n1}')^{1/3} - 16$$
$$a^* = 500[(X_1 / X_{n1}')^{1/3} - (Y_1 / Y_{n1}')^{1/3}]$$
$$b^* = 200[(Y_1 / Y_{n1}')^{1/3} - (Z_1 / Z_{n1}')^{1/3}],$$

wherein

X_1, Y_1, and Z_1 are tristimulus values for the first color values, and

X_{n1}', Y_{n1}', and Z_{n1}' are white reference tristimulus values for the first color imaging system;

converting the second color values into the fourth color values using the equations

$$L^* = 116(Y_2 / Y_{n2}')^{1/3} - 16$$
$$a^* = 500[(X_2 / X_{n2}')^{1/3} - (Y_2 / Y_{n2}')^{1/3}]$$
$$b^* = 200[(Y_2 / Y_{n2}')^{1/3} - (Z_2 / Z_{n2}')^{1/3}],$$

wherein

X_2, Y_2, and Z_2 are tristimulus values for the second color values, and

X_{n2}', Y_{n2}', and Z_{n2}' are white reference tristimulus values for the second color imaging system; and

adjusting the white reference vector [first reference values] using the black tristimulus values for the first and second color imaging systems.

57. (Amended) For use in performing a color transformation between first and second color imaging systems, a color transformation arrangement comprising:

means for generating first color values by using output samples of the first color imaging system, the first color values representing colors of the output samples of the first color imaging system;

means for generating second color values by using output samples of the second color imaging system, the second color values representing colors of the output samples of the second color imaging system;

means for converting the first color values into third color values using a color coordinate system;

means for converting the second color values into fourth color values using the color coordinate system;

means for calculating a black reference vector [first reference values] from a medium on which the output samples are formed and a white reference vector [second reference values] from the black reference vector [first reference values];

means for adjusting the white reference vector [second reference values] using the first and second color values; and

means for generating color transformation values using the third and fourth color values.

-- 58. (New) A method for characterizing a color imaging system, the method comprising:

obtaining first color values representing output of the system;

converting the first color values to second color values using a white reference vector for the system; and

adjusting the white reference vector as a function of a black reference vector

for the system.

53 ~~59~~. (New) The method of claim 52 ~~58~~, further comprising calculating the black reference vector as a function of a medium on which the output of the system is formed.

54 ~~60~~. (New) The method of claim 52 ~~58~~, further comprising defining the black reference vector as a vector of zeros.

55 ~~61~~. (New) The method of claim 52 ~~58~~, further comprising defining the black reference vector using a maximum value in a black color channel of the color imaging system and minimum values in at least one additional color channel of the color imaging system.

56 ~~62~~. (New) The method of claim 52 ~~58~~, further comprising defining the black reference vector using maximum values in color channels of the color imaging system.

57 ~~63~~. (New) A color characterization method for characterizing a color imaging system, the method comprising:

obtaining first color values in a color coordinate system using output samples of the color imaging system, the first color values representing colors of the output samples of the color imaging system; and

converting the first color values into second color values in a device-independent color coordinate system using a white reference vector and a black reference vector according to the following equations:

$$L^* = 116((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} - 16$$

$$a^* = 500[((X - X_{bp}) / (X_n' - X_{bp}))^{1/3} - ((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3}]$$

$$b^* = 200[((Y - Y_{bp}) / (Y_n' - Y_{bp}))^{1/3} -$$

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$((Z - Z_{bp}) / (Z_n' - Z_{bp}))^{1/3}]$,

wherein

X, Y, and Z are tristimulus values for the first color values,

X_n', Y_n', and Z_n' represent a white reference vector, and

X_{bp}, Y_{bp}, and Z_{bp} represent a black reference vector; and

adjusting the white reference vector using the tristimulus values.

58 ~~64~~. (New) The method of claim 57 ~~63~~, further comprising adjusting the white reference vector using the equations:

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$$X_n' = X_b(1 - \mathrm{sat}(X,X_{bp},X_n)) + X_n \bullet \mathrm{sat}(X,X_{bp},X_n),$$
$$Y_n' = Y_b(1 - \mathrm{sat}(Y,Y_{bp},Y_n)) + Y_n \bullet \mathrm{sat}(Y,Y_{bp},Y_n),$$
$$Z_n' = Z_b(1 - \mathrm{sat}(Z,Z_{bp},Z_n)) + Z_n \bullet \mathrm{sat}(Z,Z_{bp},Z_n),$$

wherein

$$\mathrm{sat}(X,X_{bp},X_n) = (X - X_n) / (X_{bp} - X_n),$$
$$\mathrm{sat}(Y,Y_{bp},Y_n) = (Y - Y_n) / (Y_{bp} - Y_n),$$
$$\mathrm{sat}(Z,Z_{bp},Z_n) = (Z - Z_n) / (Z_{bp} - Z_n),$$

X_n, Y_n, and Z_n are tristimulus values for a perfect white diffuser under standard viewing conditions, and

X_b, Y_b, and Z_b are tristimulus values for an imaging medium associated with the color imaging system. --

REMARKS

In this Amendment, Applicants have canceled claims 6, 19, 24, 39, and 40, amended claims 1-5, 8-10, 12-15, 17, 18, 20-23, 25, 26, 28-31, 34-38, 41, 42, 44-47, 49-51, 53, 55, and 57, and added new claims 58-64. Accordingly, claims 1-5, 7-18, 20-23, 25-38, and 41-64 are now pending in the present application. Applicant also has amended the specification to correct a minor informality pointed out by the Examiner.

In the Office Action, the Examiner rejected claims 1, 6, 7, 17, 18, 23-27, 30, 32-34,

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